XPROG Programmer
Users Manual

Universal Programmer XPROG allows to program internal EEPROM of MOTOROLA microcontrollers family : MC68HC05xxx, MC68Hc705xxx, MC68HC08xxx, MC68HC11xxx, as well as consequent EEPROM series 24Cxx, 25Cxx, 64Lxx, 93Cxx, 95Cxx and similar.

Big amount of consequent EEPROM is supported widely used in car audio- and CD players, car computers (instrument panels (DASHBOARD), AIRBAG, immobilizers).

All Motorola microcontrollers can be programmed "on-board" (without taking from the circuit pack).

Operating system: Microsoft Windows 95/98/Me/2000, Windows XP-functioning not stable.

PDF created with pdfFactory Pro trial version www.pdffactory.com

The XPROG supports in circuit and on board programming 68HC05, 68HC08, 68HC11, SPI, EEPROM .

Motorola microcontrollers

- MC68HC11A8
- MC68HC11E9
- MC68HC711E9
- MC68HC811E2
- MC68HC11E20
- MC68HC11G5
- MC68HC711G5
- MC68HC11N4
- MC68HC11F1
- MC68HC11PH8
- MC68HC711PH8
- MC68HC11PA8
- MC68HC711PA8
- MC68HC11K4
- MC68HC711K4
- MC68HC11KA4
- MC68HC711KA4
- MC68HC11L6
- MC68HC711L6
- MC68HC11P2
- MC68HC11F1
- MC68HC11PH8(0H30R Q=614kHz)
- MC68HC11PH8(3D64J Q=614kHz)
- MC68HC11P2(0G10V Q=614kHz)
- MC68HC11P2(1E53M Q=614kHz)
- MC68HC11P2(3E74J Q=614kHz)
- MC68HC11EA9(2D47J)
- MC68HC11EA9(1D47J)
- MC68HC11EA9
- MC68HC05B6/16/32
- MC68HC705B16/16N/32
- MC68HC05X16/32
- C68HC05B32 (new type from Audi CHORUS)
- MC68HC05H12(0H57A)
- MC68HC05E6(0G72G)
- MC68HC05E6(0F82B)
- MC68HC05X32(0D69J;1H52A)
- MC68HC05X32(0D53J)
- MC68HC08AZ32
- C68HC08AZ32(0J66D)
- MC68HC08AS60
- MC68HC08AZ60
- MC68HC08AZ60A

SERIAL EEPROM

AT93C46
AT93C46A
AT93C56
AT93C57
AT93C66
AT59C11
AT59C12
AT59C13
AT93C46
AT93C46A
AT93C56
AT93C57
AT93C66
AT59C11
AT59C12
AT59C13

CAT24C01
CAT24WC01
CAT24C02
CAT24WC02
CAT24C04
CAT24WC04
CAT24C08
CAT24WC08
CAT24C16
CAT24WC16
CAT24C32
CAT24WC32
CAT24C64
CAT24WC64
CAT64LC10
CAT64LC20
CAT64LC30
CAT93C46
CAT93C46A
CAT93C56
CAT93C57
CAT93C66
CAT93C66A
CAT93C86

24C01A
24LC01B
24C02A
24LC02B
24C04A
24LC04B
24C08A
24LC08B
24C16A
24LC16B
24C32A
24LC32B

93C06
93LCS46
93LC46B
93C56
93LC56
93C66
93LC66
93C76
93LC76
93C86
93LC86
93C46
85C72
85C82
85C92

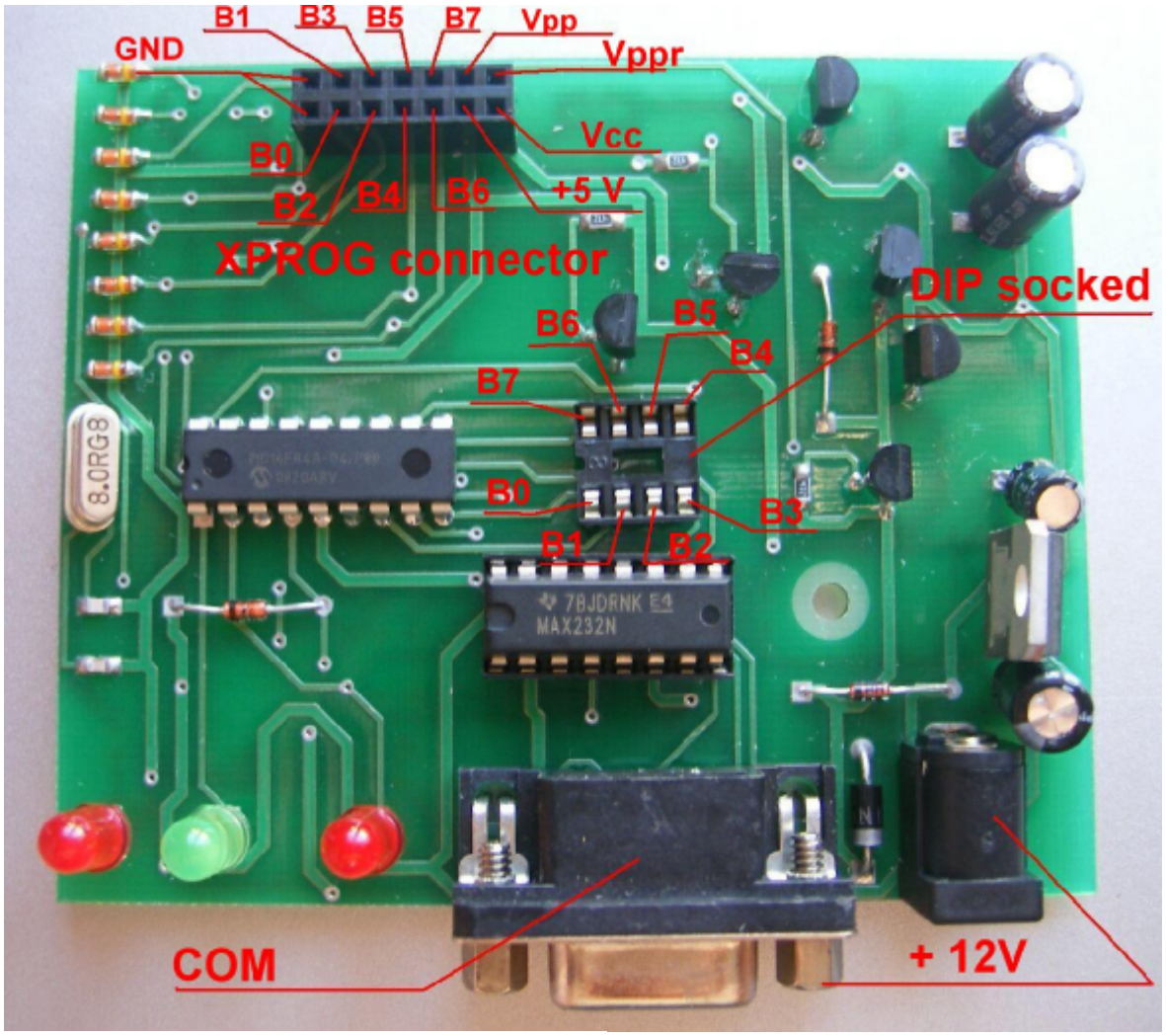
M6M80011P
M6M80021P
M6M80041P
NM93C06
NM93C46
NM93C14
NM93C56
NM93CS56
NM93C66
NM93CS66
NM93C86A
SDE2506
SDE2526

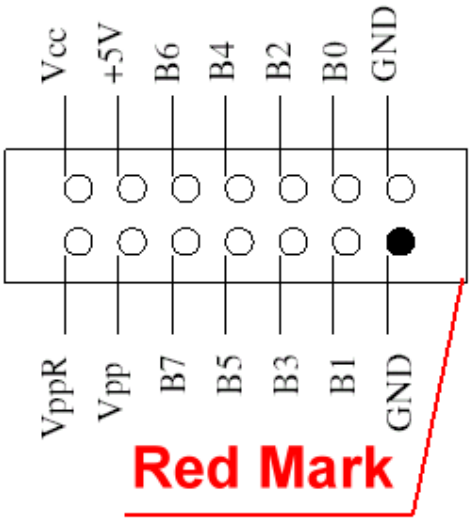
X24C00
X24C01
X2402
X2404
X2408
X24164
X24165
X2444
X24C44

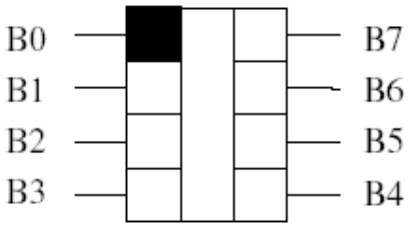
Attention: This version of programmer only supports MCU MOTOROLA and microcircuits EEPROM specified here.

PDF created with pdfFactory Pro trial version www.pdffactory.com

Programmer board layout







For reading and writing the EEPROM chips "on-board" (without taking from the circuit pack) it is necessary to disconnect power pin of the chip from circuit pack.

All Motorola microcontrollers can be programmed "on-board" (without taking from the circuit pack).

Programming MCU MOTOROLA can be produced "on-board" through universal XPROG-connector (DB-14).

PDF created with pdfFactory Pro trial version www.pdffactory.com

TARGET CONNECTION

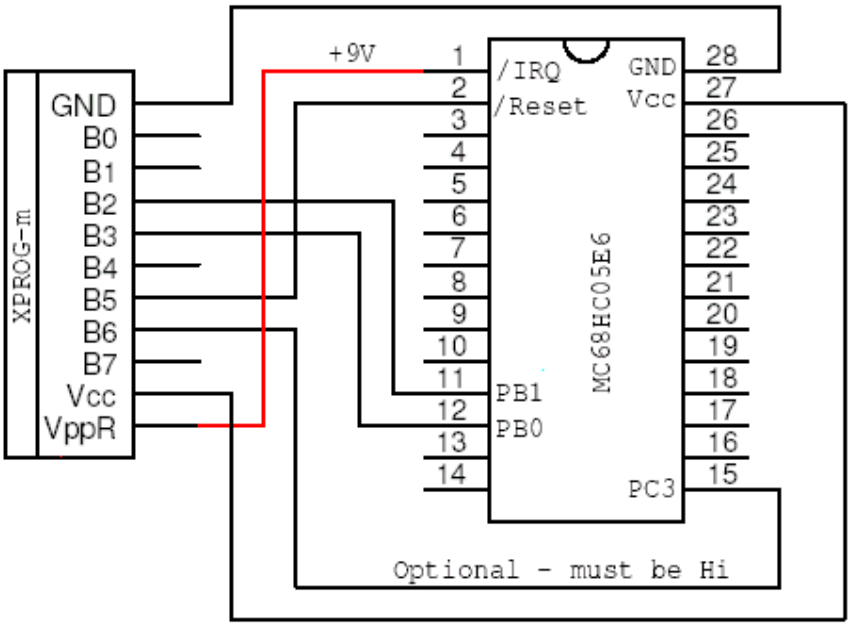
This section contains information how to connect XPROG to various targets to access internal target resources such as EEPROM, MCU.

Note: Nets marked “Optional - must be Lo or Hi TTL logic level” not require connection with XPROG if they have described level in the circuit.
Note: Some circuit connections can disturb proper XPROG operation. In this case you must disconnect corresponding MCU pin rom circuit.

Warnig: XPROG Vpp and VppR pins have hi voltage who can damage circuit. If you are not sure that you can’t damage circuit ,you must disconnect this MCU pin from circuit.

MC68HC05 family

MC68HC05E6

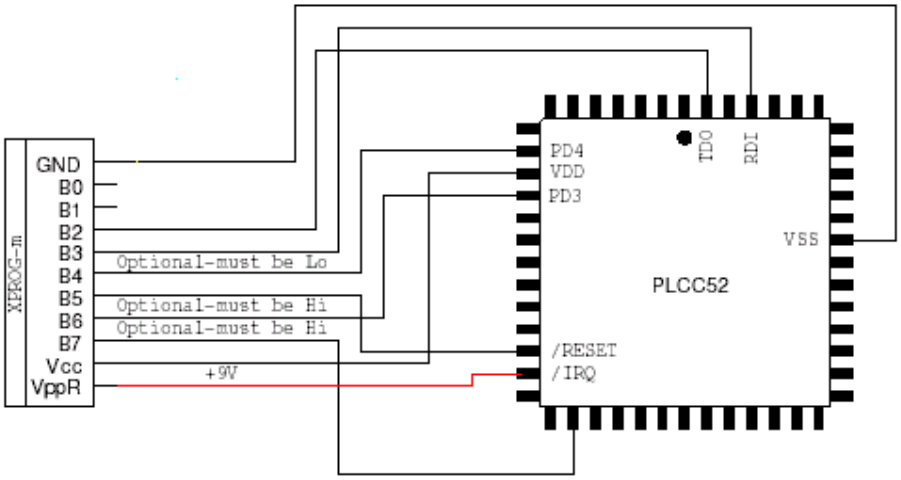


Mask sets: 0F82B, 0G72G
Oscillator: 3, 4 pin
Packages: SOIC28, SDIP28
EEPROM: 0x0100 – 0x019F

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	-	0/1	1	-	+5V±5%	+9V±5%

PDF created with pdfFactory Pro trial version www.pdffactory.com

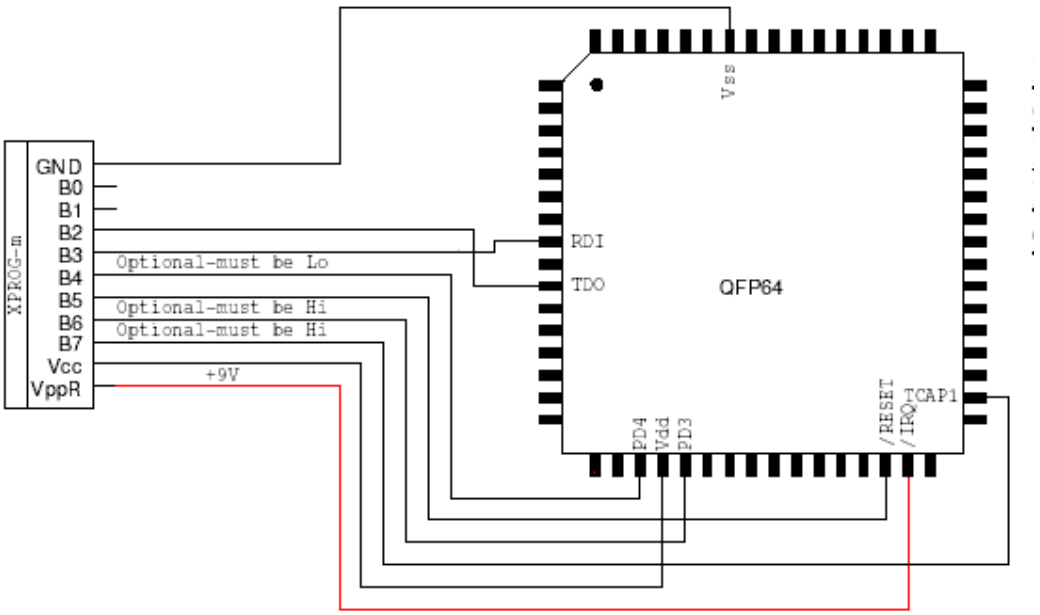
MC68HC05B6/B8/B16/B32 (PLCC52)



Mask sets:
Oscillator: 16, 17 pin **EEPROM: 0x0101 – 0x01FF**
Packages: PLCC52 **CFG(EEPROM): 0x0100**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	0	0/1	1	1	+5V±5%	+9V±5%

MC68HC05B6/B8/B16/B32 (QFP64)

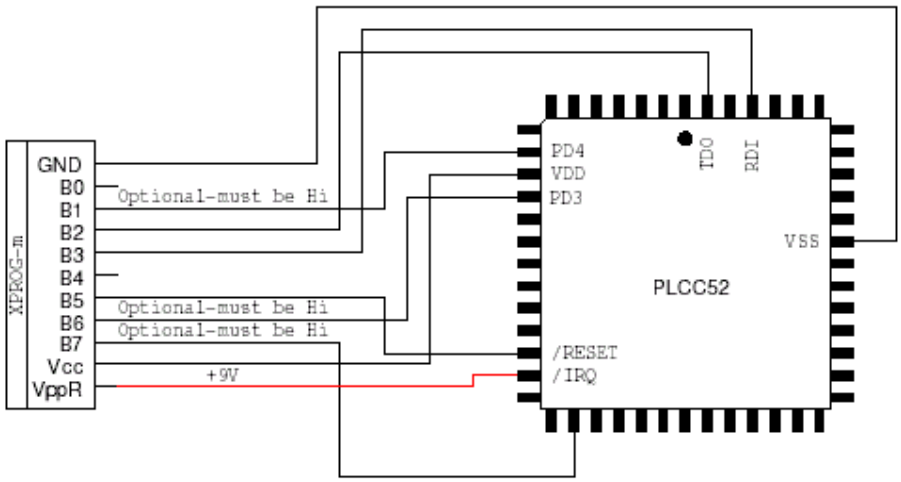


Mask sets:
Oscillator: 28, 29 pin **EEPROM: 0x0101 – 0x01FF**
Packages: QFP64 **CFG(EEPROM): 0x0100**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	0	0/1	1	1	+5V±5%	+9V±5%

PDF created with pdfFactory Pro trial version www.pdffactory.com

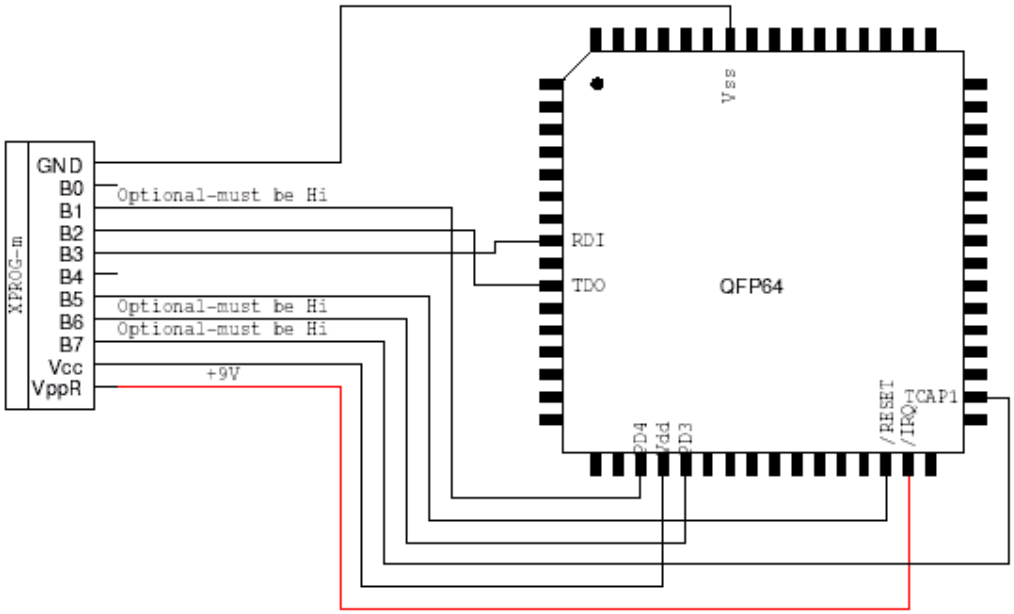
MC68HC705B16N/B32 (PLCC52)



Mask sets:
Oscillator: 16, 17 pin **EEPROM: 0x0101 – 0x01FF**
Packages: PLCC52 **CFG(EEPROM): 0x0100**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	1	0/1	0/1	-	0/1	1	1	+5V±5%	+9V±5%

MC68HC705B16N/B32 (QFP64)

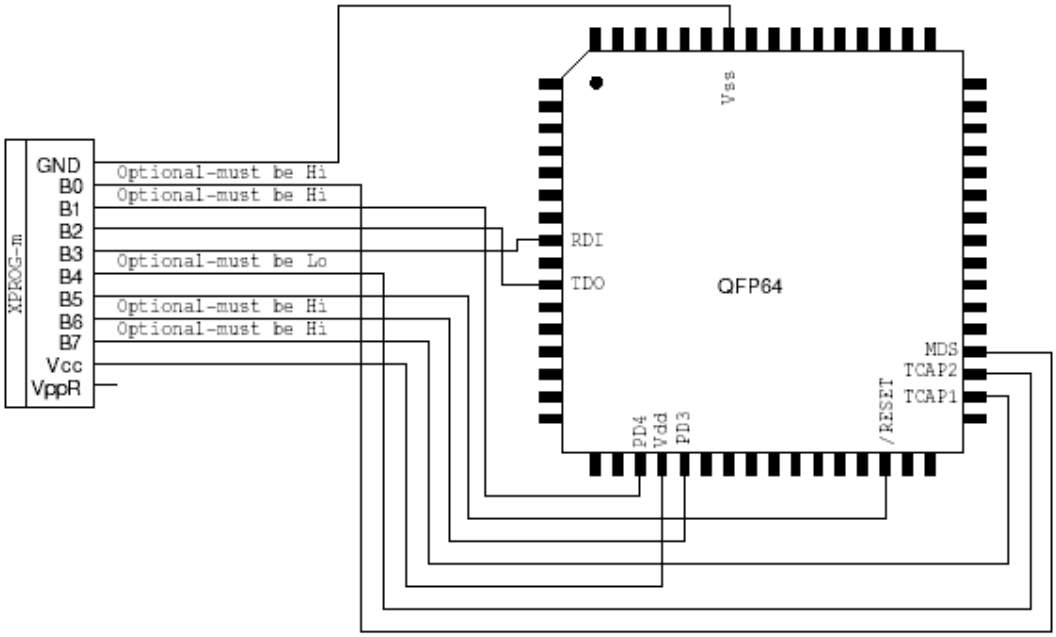


Mask sets:
Oscillator: 28, 29 pin **EEPROM: 0x0101 – 0x01FF**
Packages: QFP64 **CFG(EEPROM): 0x0100**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	1	0/1	0/1	-	0/1	1	1	+5V±5%	+9V±5%

PDF created with pdfFactory Pro trial version www.pdffactory.com

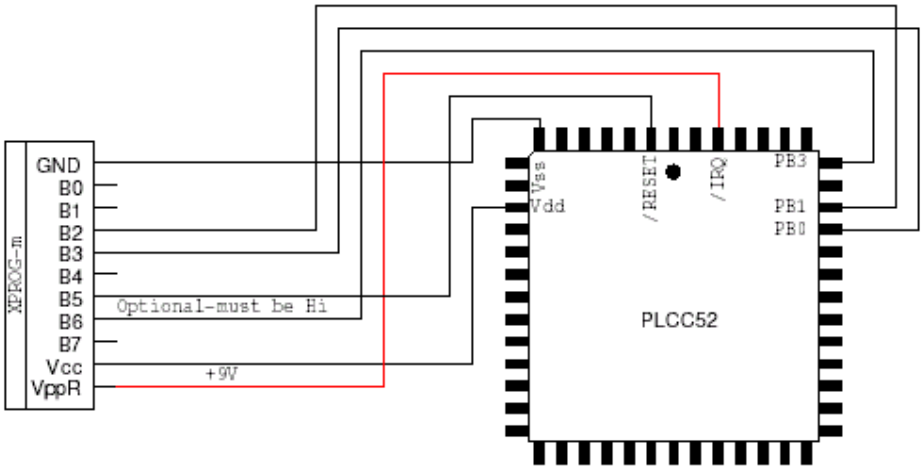
MC68HC(7)05X16/X32 (QFP64)



Mask sets: 0D53J, 0D69J,1D69J, 1H52A,2D59J
Oscillator: 28, 29 pin EEPROM: 0x0101 – 0x01FF
Packages: QFP64 CFG(EEPROM): 0x0100

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	1	1	0/1	0/1	0	0/1	1	1	+5V±5%	

MC68HC(7)05H12

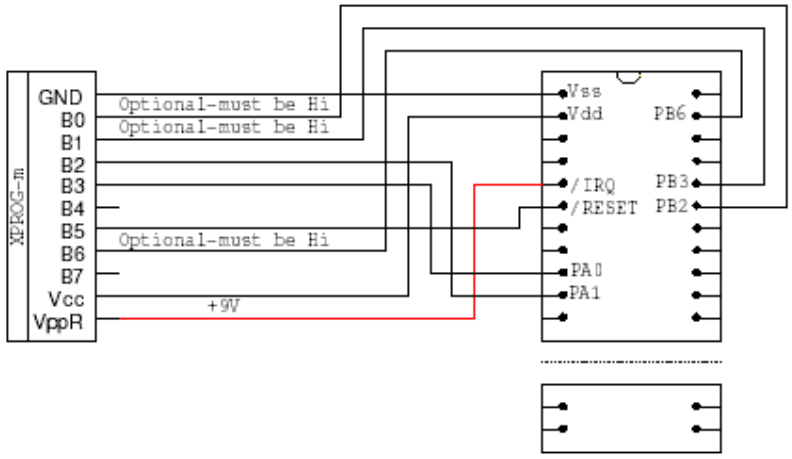


Mask sets: 0H57A
Oscillator: 1, 52 pin Packages: PLCC52 EEPROM: 0x0400 – 0x04FF

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	-	0/1	1	-	+5V±5%	+9V±5%

PDF created with pdfFactory Pro trial version www.pdffactory.com

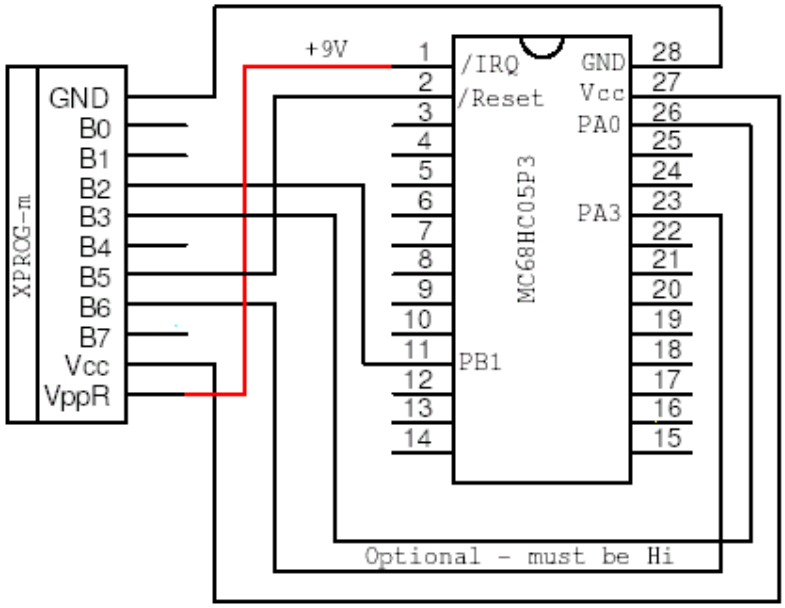
MC68HC(7)05L28



Mask sets:
Oscillator: 7, 8 pin **Packages: SDIP56** **EEPROM: 0x0300 – 0x03EF**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	1	1	0/1	0/1	-	0/1	1	-	+5V±5%	+9V±5%

MC68HC05P3

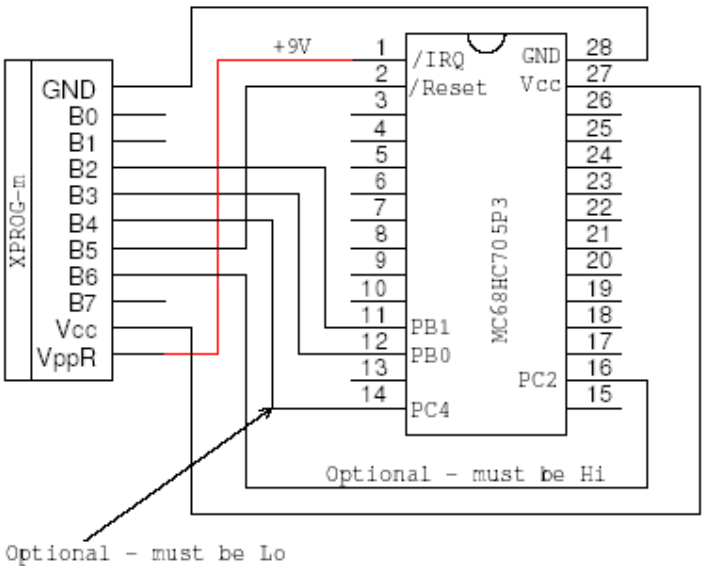


Mask sets: 1E25B
Oscillator: 3, 4 pin **Packages: SOIC28, SDIP28** **EEPROM: 0x0100 – 0x017F**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	-	0/1	1	-	+5V±5%	+9V±5%

PDF created with pdfFactory Pro trial version www.pdffactory.com

MC68HC705P3



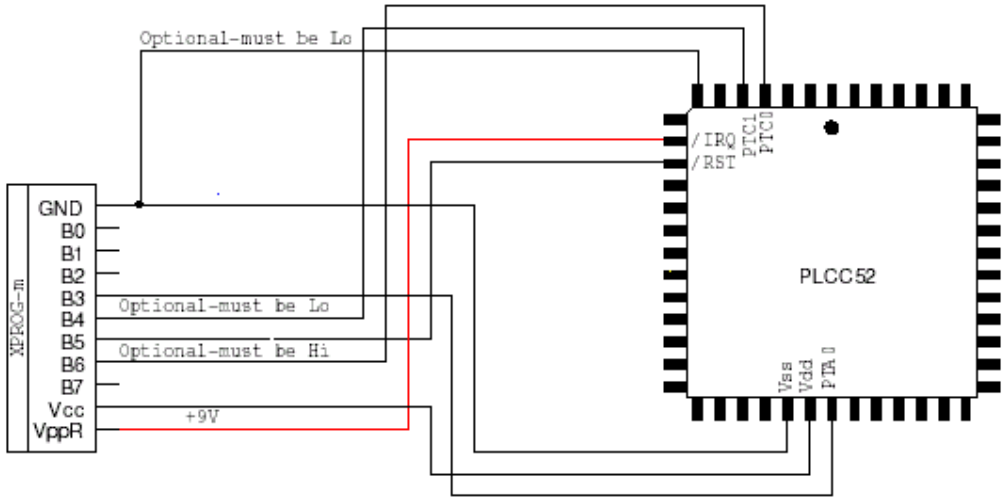
Mask sets: 1F75B
Oscillator: 3, 4 pin
Packages: SOIC28, SDIP28
EEPROM: 0x0100 – 0x017F

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	0	0/1	1	-	+5V±5%	+9V±5%

PDF created with pdfFactory Pro trial version www.pdffactory.com

MC68HC08 family

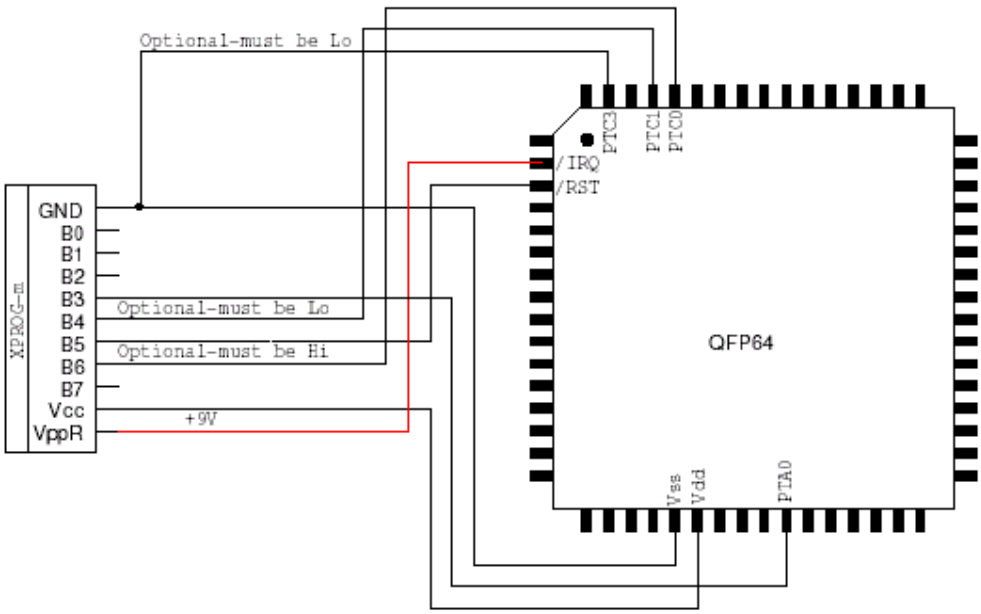
MC68HC08AS32/AS32A (PLCC52)



Mask sets: 1J27F
Oscillator: 2, 3 pin **Packages: PLCC52** **EEPROM: 0x0800 – 0x09FF**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	-	0/1	0	0/1	1	-	+5V±5%	+9V±5%

MC68HC08AS32/AS32A (QFP64)

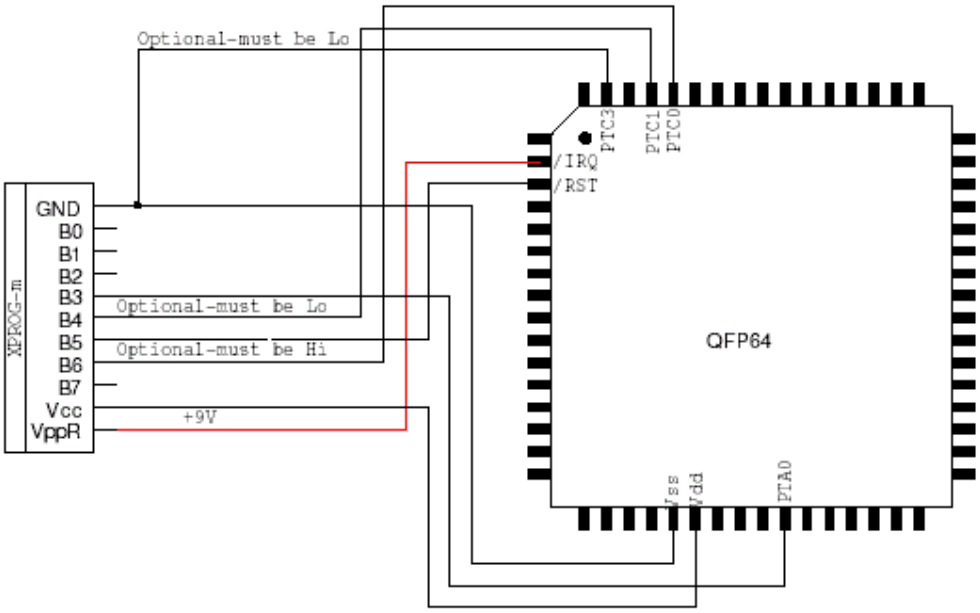


Mask sets: 1J27F
Oscillator: 58, 59 pin **Packages: QFP64** **EEPROM: 0x0800 – 0x09FF**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	-	0/1	0	0/1	1	-	+5V±5%	+9V±5%

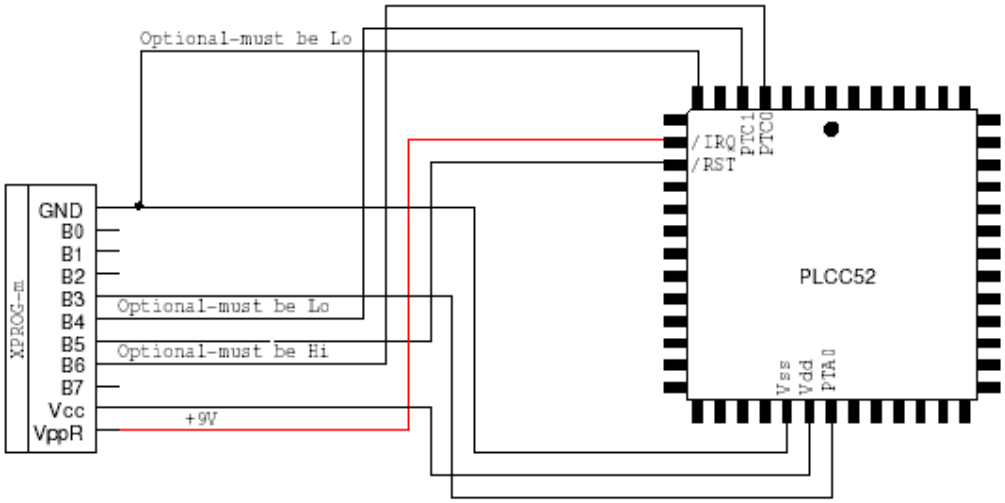
PDF created with pdfFactory Pro trial version www.pdffactory.com

MC68HC08AZ32A



Mask sets: 0J66D
Oscillator: 58, 59 pin **Packages: QFP64** **EEPROM: 0x0800 – 0x09FF**

MC68HC08AS60/AS60A(PLCC52)

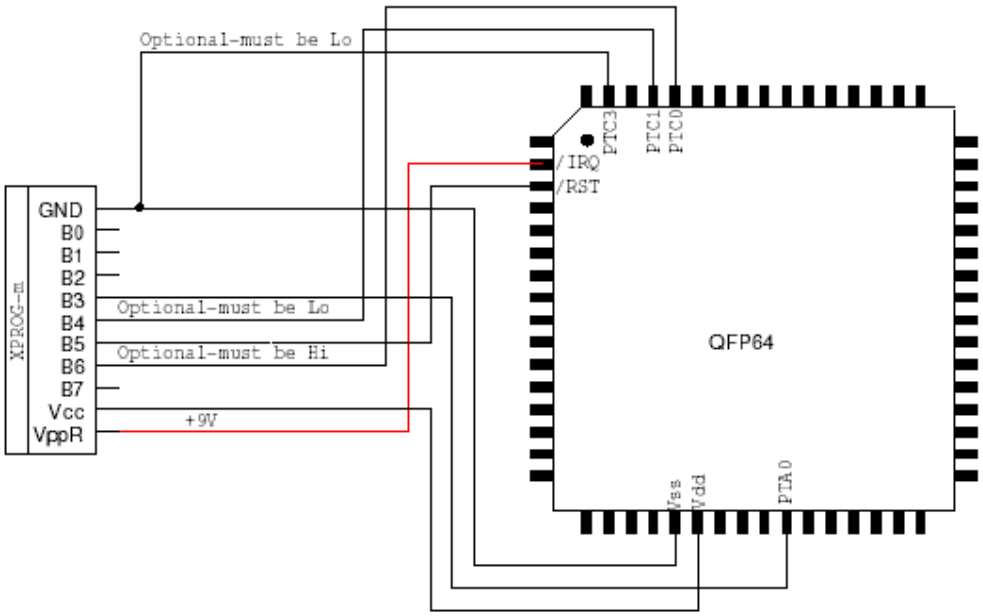


Mask sets: 0H62A, 8H62A
Oscillator: 2, 3 pin
Packages: PLCC52 **EEPROM1: 0x0800 – 0x09FF** **EEPROM2: 0x0600 – 0x07FF**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	-	0/1	0	0/1	1	-	+5V±5%	+9V±5%

PDF created with pdfFactory Pro trial version www.pdffactory.com

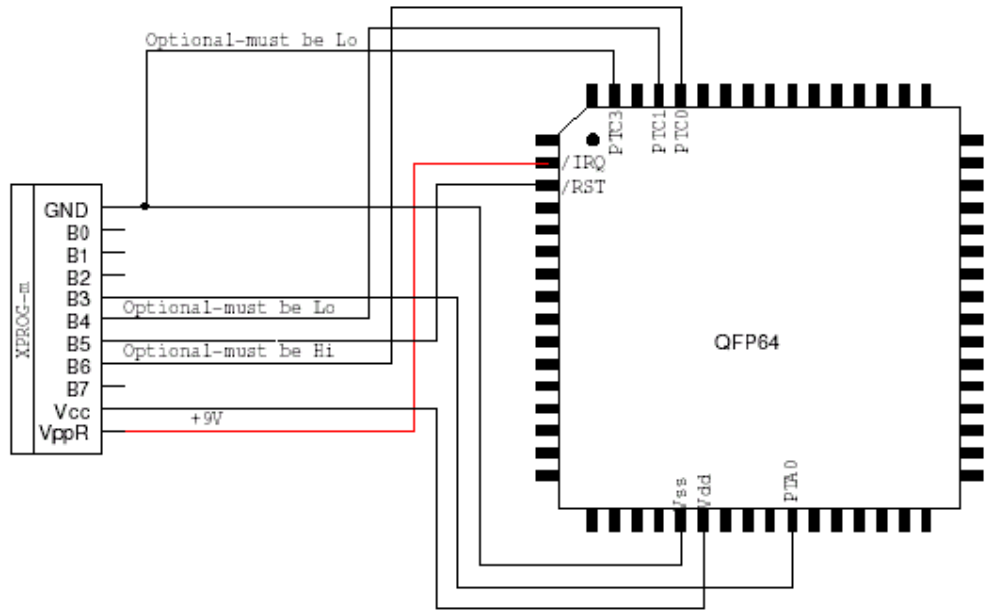
MC68HC08AS60/AS60A(QFP64)



Mask sets: 0H62A, 8H62A
Oscillator: 58, 59 pin **Packages: QFP64**
EEPROM1: 0x0800 – 0x09FF **EEPROM2: 0x0600 – 0x07FF**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	-	0/1	0	0/1	1	-	+5V±5%	+9V±5%

MC68HC08AZ60A(QFP64)



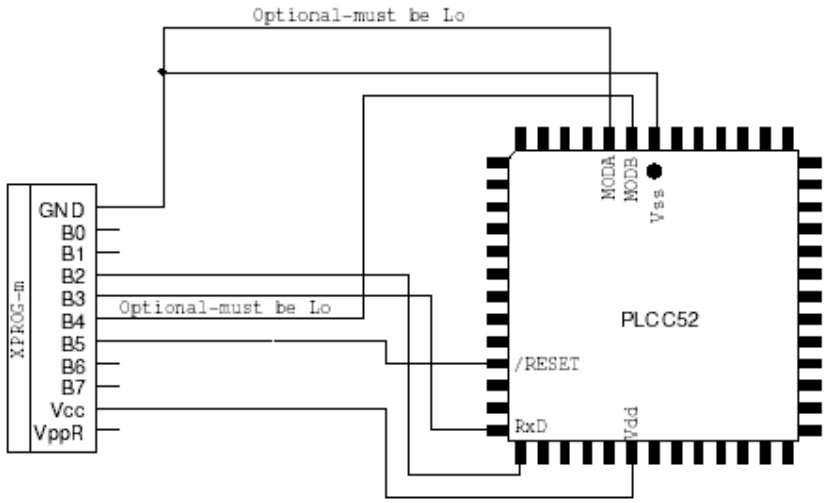
Mask sets:
Oscillator: 58, 59 pin **Packages: QFP64**
EEPROM1: 0x0800 – 0x09FF **EEPROM2: 0x0600 – 0x07FF**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	-	0/1	0	0/1	1	-	+5V±5%	+9V±5%

PDF created with pdfFactory Pro trial version www.pdffactory.com

MC68HC11 family

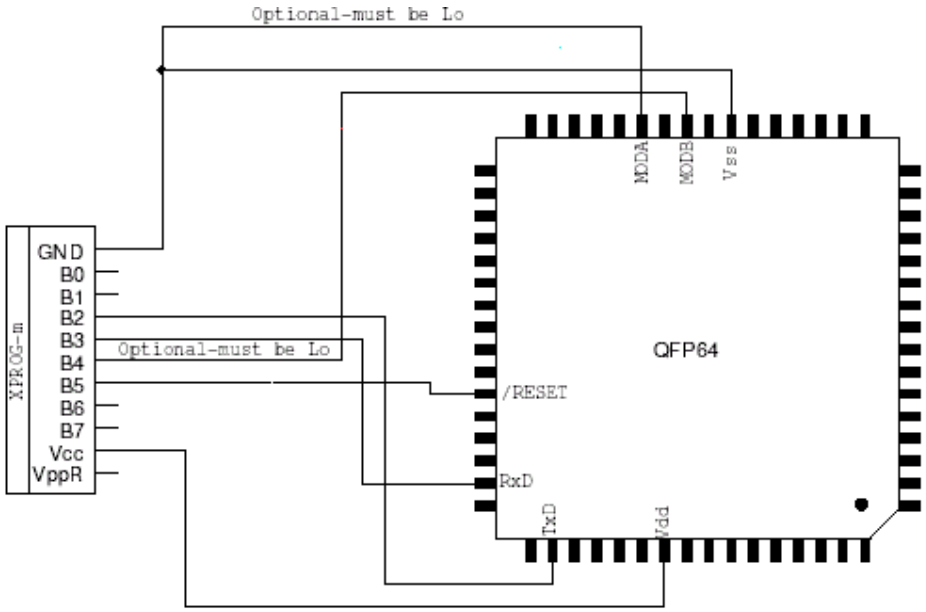
MC68HC11A8/E1/E9/E20(PLCC52)



Mask sets:
Oscillator: 7, 8 pin **Packages: PLCC52** **EEPROM: 0xB600 – 0xB7FF**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	0	0/1	-	-	+5V±5%	

MC68HC11A8/E1/E9/E20(QFP64)

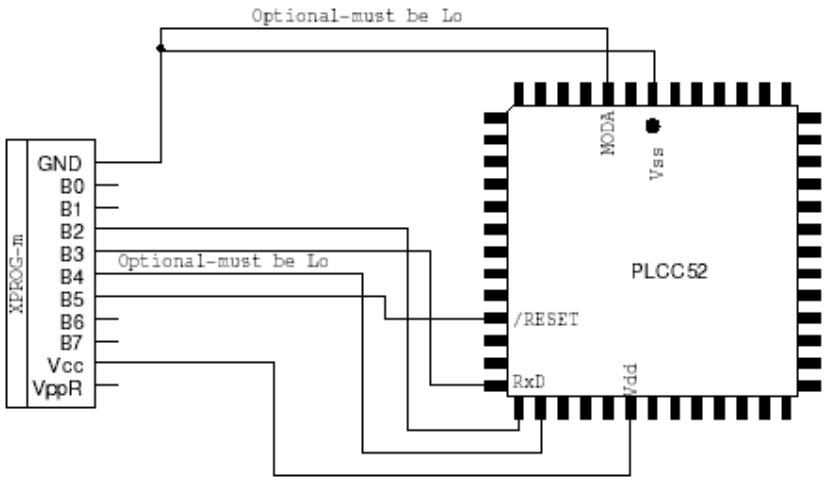


Mask sets:
Oscillator: 31, 33 pin **Packages: QFP64** **EEPROM: 0xB600 – 0xB7FF**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	0	0/1	-	-	+5V±5%	

PDF created with pdfFactory Pro trial version www.pdffactory.com

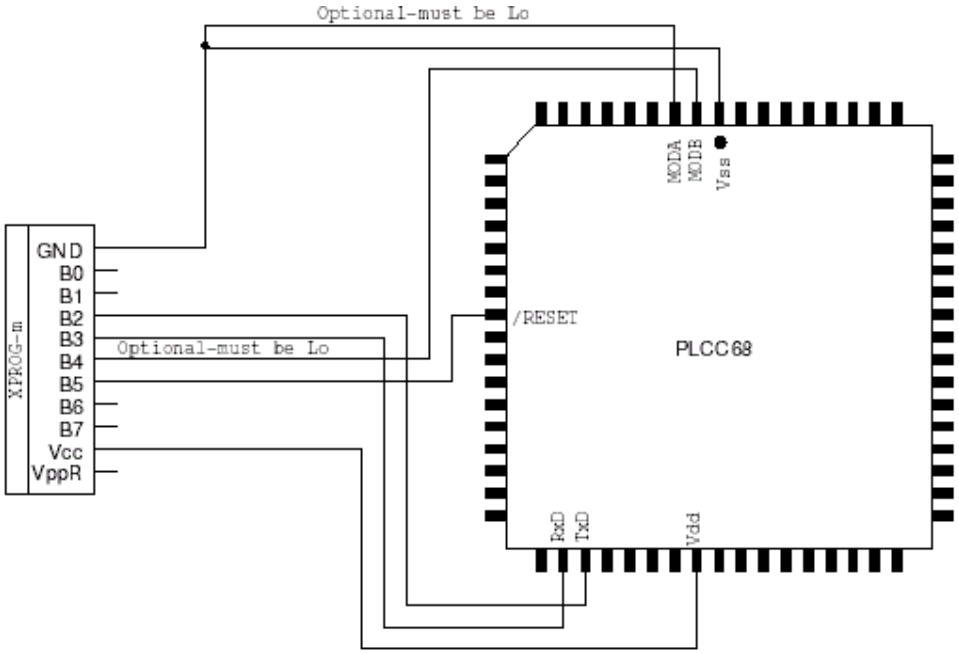
MC68HC11EA9



Mask sets: 0D46J, 1D47J, 2D47J
Oscillator: 7, 8 pin Packages: PLCC52 EEPROM: 0xB600–0xB7FF MODB: 22 pin(B4)

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	0	0/1	-	-	+5V±5%	

MC68HC11F1(PLCC68)

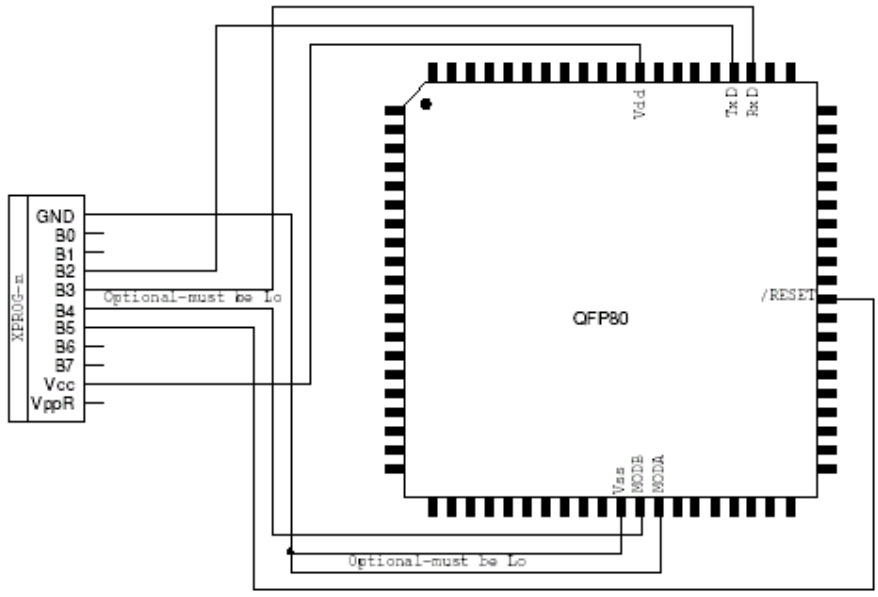


Mask sets: 2F37E, E87J
Oscillator: 6, 7 pin Packages: PLCC68 EEPROM: 0xFE00 – 0xFFFF

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	0	0/1	-	-	+5V±5%	

PDF created with pdfFactory Pro trial version www.pdffactory.com

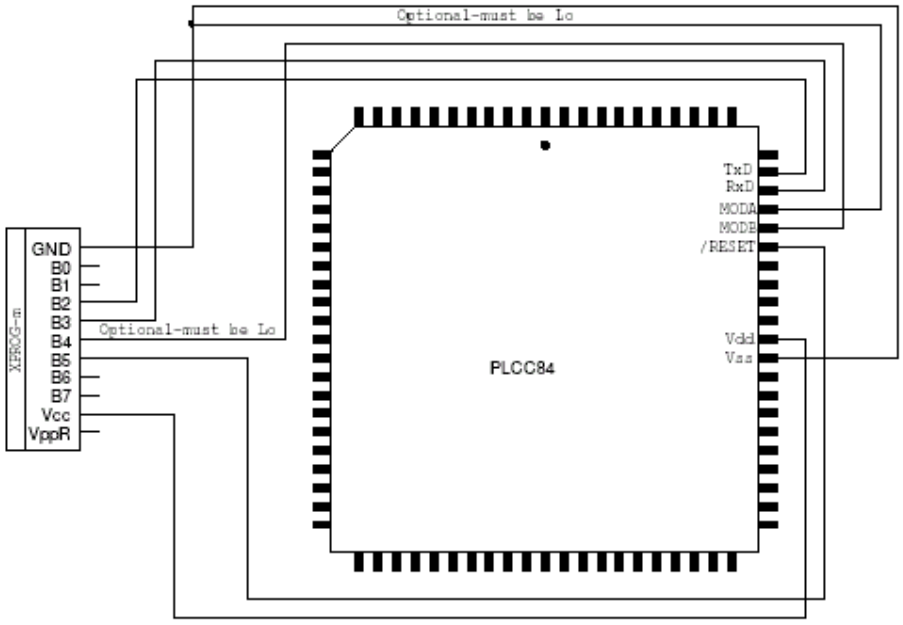
MC68HC11F1(QFP80)



Mask sets: 2F37E
Oscillator: 36, 37 pin **Packages: QFP80** **EEPROM: 0xFE00 – 0xFFFF**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	0	0/1	-	-	+5V±5%	

MC68HC11K4(PLCC84)

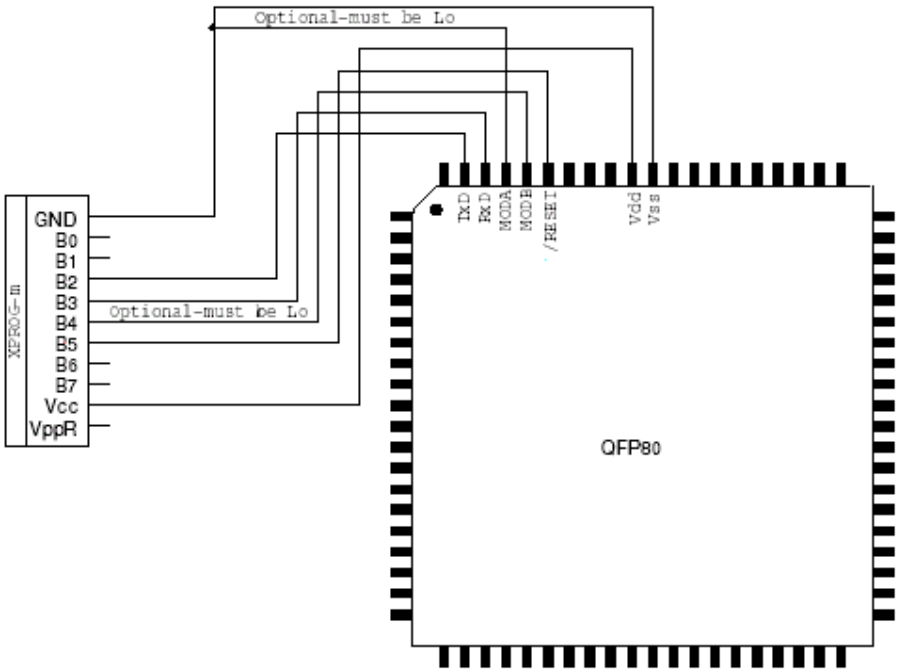


Mask sets: 1E62H
Oscillator: 67, 68 pin **Packages: PLCC84** **EEPROM: 0x0D80 – 0x0FFF**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	0	0/1	-	-	+5V±5%	

PDF created with pdfFactory Pro trial version www.pdffactory.com

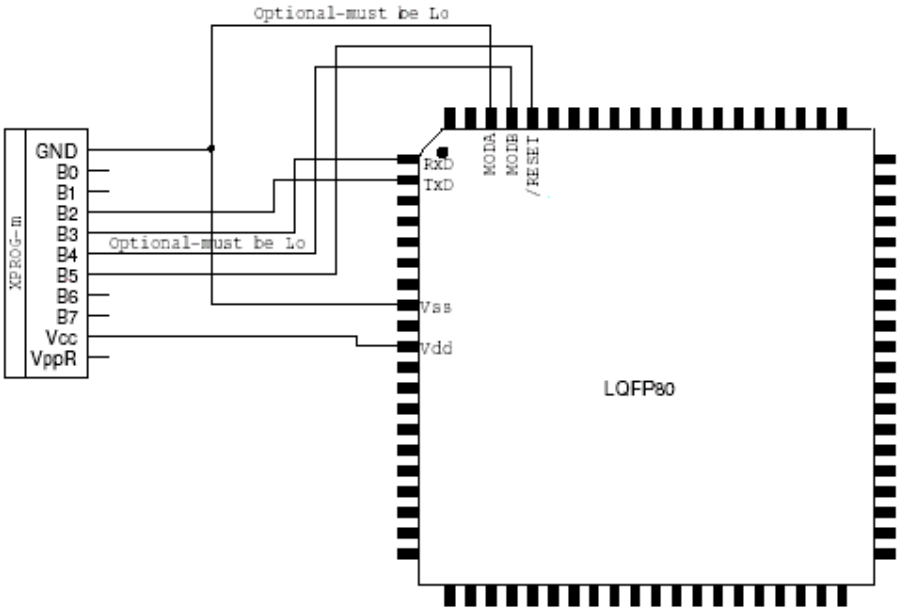
MC68HC11K4(QFP80)



Mask sets: 1E62H
Oscillator: 73, 74 pin **Packages: OFP80** **EEPROM: 0x0D80 – 0x0FFF**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	0	0/1	-	-	+5V±5%	

MC68HC11KS2(LQFP80)

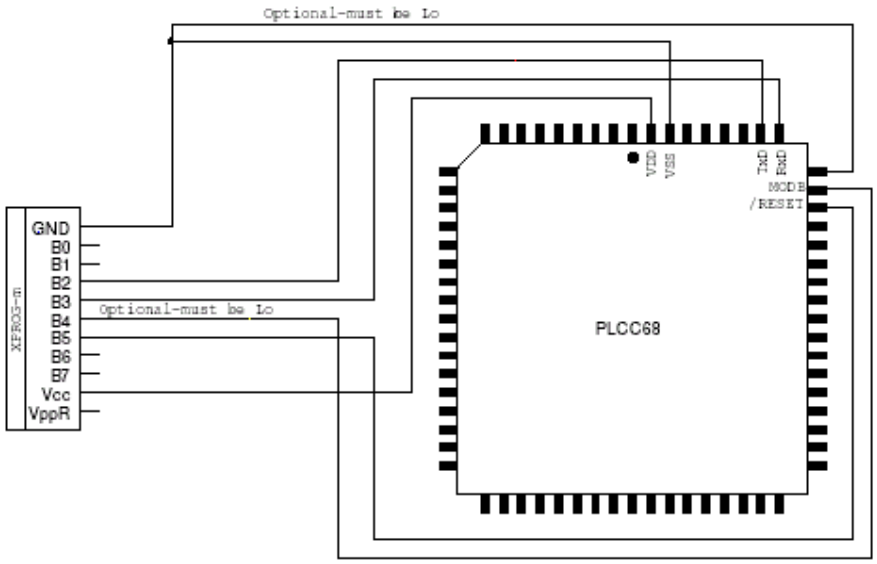


Mask sets: 1E59B, 2E59B
Oscillator: 74, 75 pin **Packages: LOFP80** **EEPROM: 0x0D80 – 0x0FFF**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	0	0/1	-	-	+5V±5%	

PDF created with pdfFactory Pro trial version www.pdffactory.com

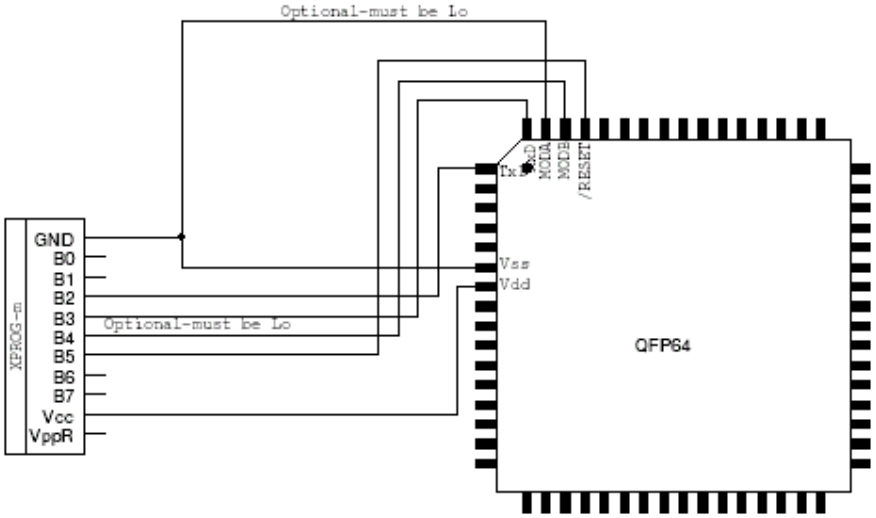
MC68HC11KA4(PLCC68)



Mask sets: 0E57S
Oscillator: 56, 57 pin **Packages: PLCC68** **EEPROM: 0x0D80 – 0x0FFF**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	0	0/1	-	-	+5V±5%	

MC68HC11KA4(QFP64)

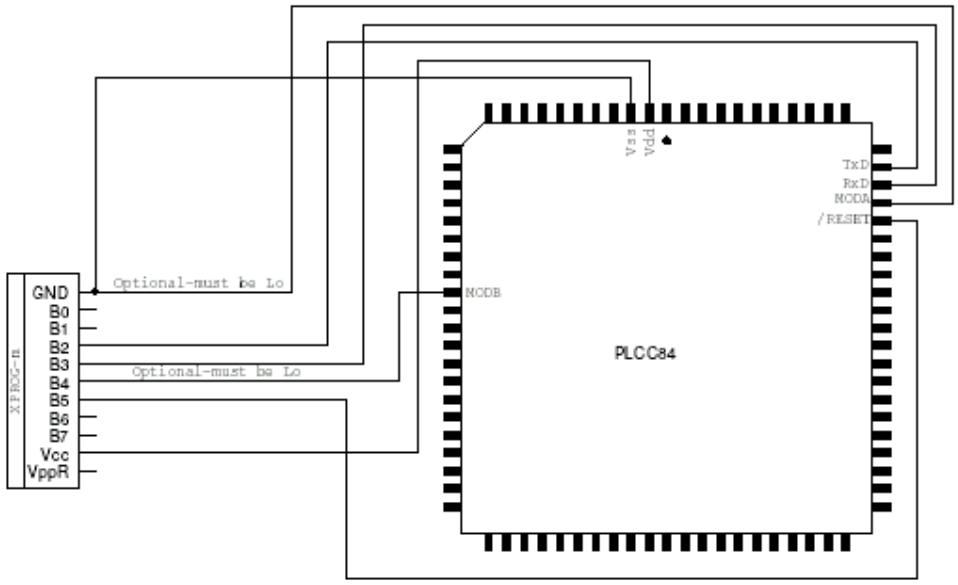


Mask sets: 0E57S
Oscillator: 59, 60 pin **Packages: QFP64** **EEPROM: 0x0D80 – 0x0FFF**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	0	0/1	-	-	+5V±5%	

PDF created with pdfFactory Pro trial version www.pdffactory.com

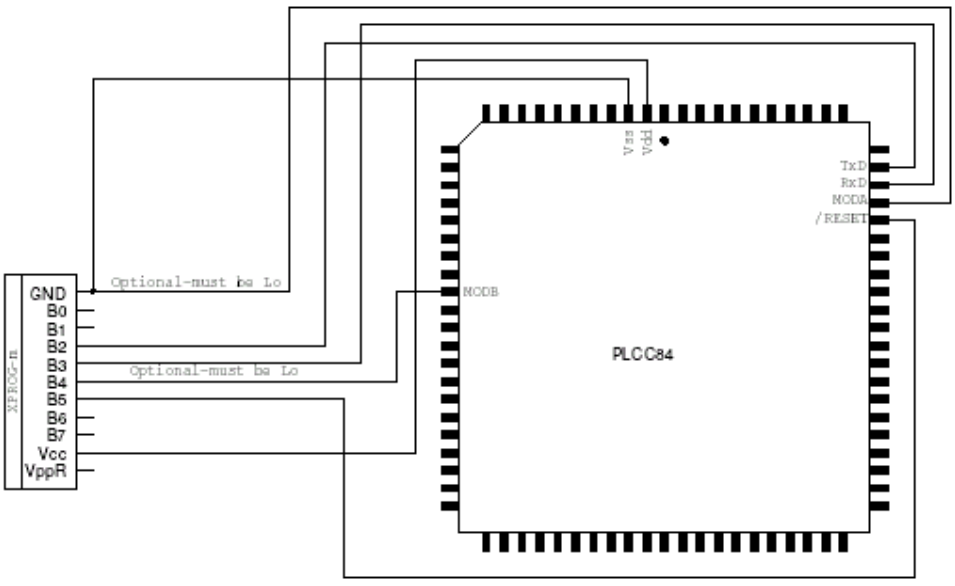
MC68HC11PH8



Mask sets: 3D64J, 0H30R
Oscillator: 66, 67 pin **Packages: PLCC84** **EEPROM: 0x0D00 – 0x0FFF**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	0	0/1	-	-	+5V±5%	

MC68HC11P2



Mask sets: 3E74J, 1E53M, 0G10V
Oscillator: 66, 67 pin **Packages: PLCC84** **EEPROM: 0x0D80 – 0x0FFF**

XPROG pin	B0	B1	B2	B3	B4	B5	B6	B7	Vcc	VppR
Signal level	-	-	0/1	0/1	0	0/1	-	-	+5V±5%	

PDF created with pdfFactory Pro trial version www.pdffactory.com

PDF created with pdfFactory Pro trial version www.pdffactory.com